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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NATNAEL, PAULOS M	
ART UNIT	**PAPER NUMBER**
2614	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/726,819	MOGRE ET AL.	
	Examiner	Art Unit	
	Paulos M. Natnael	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-9,11-14,16-19 and 21-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-9,11-14,16-19,21 and 23* is/are rejected.

7)☒ Claim(s) *22,24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on April 1, 2004, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims **11, 13-14, 16, 18, 19 and 23** are rejected under 35 U.S.C. 102(e) as being anticipated by Yi, U.S. Pat. No. 6,061,387.

Considering claim 11,

a) a converter configured to convert a symbol stream into an encoded stream comprising a plurality of symbols into an encoded stream, is met by A/D converter 158, Fig.5, which "samples and quantizes the data to a digital bit stream; (see col. 10, lines 38-55)

b) a turbo decoder configured to decode said encoded stream to produce an data stream, is met by turbo decoder 172, fig.5.

c) a synchronization remover configured to remove a synchronization signal from said data stream, is met by synch circuit 168, fig.5, which "acquires synchronization by dispreading the pilot signals of signal paths A1 and A2..." (col. 10, lines 56+)

Considering claim **13**, the system of claim 11, wherein said turbo decoder comprises: a plurality of decode modules configured to decode said encoded stream to produce said data stream, is met by Map decoder #1 and Map decoder #2, fig. 6.

Considering claim **14,** the system according to claim 13, wherein said turbo decoder further comprises: a depuncture module configured to depuncture a redundant portion of said encoded stream, is met by Combiner 184, fig.6. (see col. 11, lines 50+)

Considering claim **16**, Claim **16** is a method claim of Claim **11** and, therefore, Claim 16 is rejected for the same reasons as in Claim 11.

Claims **18 and 19** are method claims of Claims **13 and 14**, respectively and therefore Claims **18 and 19** are rejected for the same reasons as in Claims **13 and 14.**

Considering claim **23**, a demodulator configured to demodulate a signal to produce a said symbol stream capable wherein each of said symbols consists of two error protected bits and one redundant bit, is met by the Demodulator 170, Fig.2A;

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims **1-4,6-9, and 21** are again rejected under 35 U.S.C. 103(a) as being unpatentable over Fimoff et al., U.S. Pat. No. **6,529,558** in view of Langhammer et al, U.S. Pat. No. **6,400,290**.

Considering claim **1,** Fimoff et al discloses the following claimed subject matter, note;

a) a formatter configured to format a plurality of data frames of a transport stream is met by the data source 110, Fig. 15b.

b) the claimed "inserting a plurality of synchronization data to produce a block stream" is met by the disclosure on the abstract which teaches that "The data frame contains a plurality of data segments, where each of the data segments contain DS symbols. The DS symbols include data symbols, priming symbols, and segment synchronization symbols. The transmitter trellis encodes the data symbols, priming symbols, and segment synchronization symbols." (see Abstract)

c) an error correction encoder configured to encode said block stream to produce an error protected block stream, is met by Reed Solomon Encoder 112, fig. 15b.

d) an interleave module configured to interleave said error protected block stream to produce a data stream, is met by Data Byte Interleaver 114 and Data symbol interleaver 116, fig. 15b;

e) an inserter configured to insert a synchronization signal into said data stream, is met by Mapper 122, fig. 15b.

Except for;

f) a turbo encoder configured to encode said data stream to produce an encoded stream.

Regarding f), Fimoff et al. discloses a TCM Encoder which is configured to encode the data stream to produce an encoded stream. Turbo encoders are known as concatenated convolutional coders in the art. Fimoff discloses convolutional encoding in the Trellis code modulation. (see fig.15b) Langhammer et al. for example, discloses a Turbo Encoder 60 comprising interleaver 20, encoder 1, encoder 2, and Puncture 50, Fig.1. Therefore, it would have been an obvious matter of design choice to those with ordinary skill in the art at the time the invention was made to modify the system of Fimoff et al. by replacing TCM encoder with that of Langhammer et al, since the applicant has not discloses that having the Turbo encoder solves any stated problem, and it appears that the convolutional encoder of Fimoff would perform equally well.

Considering claim **2**, the system according to claim 1, wherein said transport stream defines two high definition television programs substantially simultaneously is met by the disclosure on col. 7, lines 60-64.

Considering claim **3**, the system according to claim 1, wherein said turbo encoder comprises: a first systematic encoder configured to encode said data stream to produce a first redundant stream; a bit interleave module configured to interleave said data stream to produce a second data stream; and a second

systematic encoder configured to encode said second data stream to produce a second redundant stream.

Regarding claim 3, see rejection of claim 1 (f).

Considering claim 4, the system according to claim 3, wherein said turbo encoder further comprises, a puncture module configured to puncture bits from said first redundant stream and said second redundant stream to produce a redundant portion of said encoded stream.

Regarding claim 4, see rejection of claim 1(f).

Considering claim 6, Claim 6 is a method claim of Claim 1 and, therefore, Claim 6 is rejected for the same reasons as in Claim 1

Claims **7-9**, are method claims of Claims **2-4**, respectively and, therefore, Claims **7-9** are rejected for the same reasons as in Claims **2-4**.

Considering claim **21**, the claimed a bit-to-symbol mapper configured to map said encoded stream to produce a symbol stream carrying a plurality of symbols each consisting of two error protected bits and one redundant bit, is met by Mapper 122, fig. 15b;

6. Claims **12** and **17** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Yi**, U.S. Pat. No. 6,061,387 in view of **Fimoff** et al., U.S. Pat. No. **6,529, 558.**

Considering claims **12**, wherein said symbol stream defines two high definition television programs substantially simultaneously;

Considering claims **17**, the system according to claim 1, wherein said symbol stream defines two high definition television programs substantially simultaneously;

Regarding claims 12 and 17, Yi teaches that the invention can be applied to any wide area broadcasting applications using multiple signal paths, such as nationwide digital TV and audio broadcasting and digital information download services. Additionally, the invention can be utilized a network of low-orbital communications satellites, for example, GPS or other systems for transmissions of the first and second broadcast signals A.sub.1 and A.sub.2 thereto. (col. 13, lines 7+) Fimoff et al. teach that "It will be appreciated that the data source 30 may supply a compressed HDTV signal (or two compressed HDTV signals depending on the VSB mode) or a number of compressed standard definition signals. (col. 7, 60-65) Therefore, it would have obvious to the skilled in the art at the time the invention was made to modify the system of Yi by providing the teaching of Fimoff and utilize the symbol stream defining two high definition television programs in order to maximize the usage of the bandwidth of the given television signal.

Response to Arguments

7. Applicant's arguments filed April 21, 2004 have been fully considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

8. Claims **22 and 24** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose, wherein the turbo encoding has a bit error rate not greater than 2 errors per 10,000 bits, as in claims **22 and 24**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN
June 14, 2004

PAULOS M. NATHAEL
PATENT EXAMINER